Long-term institutional gains from research assessment

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Drivers for research assessment

- Encouraging excellence
  - A virtuous circle in which excellence is rewarded
  - Beacon for research users, students etc
- Better targeting of research investment
  - Focus tends to be on removing funding from weaker performers

Research performance assessment at ANSTO

- Undertaken in 2005-06
- Required under Triennium Funding Agreement signed in 2004
  - Aimed to ensure that research is high quality compared to the world's best and appropriate to Government funding objectives
  - Was intended to be in line with RQF objectives

ANSTO undertook a research performance assessment in 2005-06.

Now three years down the track - a fitting time to look back at what the benefits were as well as forward to the next time it undertakes such an assessment

The assessment was required under ANSTO's Triennium Funding Agreement, signed in 2004.

•CSIRO and AIMS -- the Australian Institute for Marine Science -- also had TFAs renewed at the same time on the same terms, so all of us had to undertake such assessments although we did so differently.

•The intention from the government's perspective was to ensure that research is high quality compared to the world's best and appropriate to Government funding objectives

It was also intended to be in line with the "objectives" of the Research Quality Framework.

- the RQF was still only in concept. It had not been developed so while ANSTO knew the government's high-level intentions, it also tried to anticipate the direction that the RQF would take.

As it was, ANSTO got that quite wrong in a key way, but nonetheless derived benefits from going down that path.

Four required elements

1. Quality of research
2. Systems for ensuring quality and achievements
3. Application and dissemination of outputs
4. Development of researchers

There were four elements in the assessment, and as you'll see this is wider than assessing the research outputs themselves.

1. The funding agreement stated that quality was to be assessed by review panels with peer researcher and end-users
2. Systems for ensuring quality & achievements included that Projects were targeted, had clear outputs & outcomes, and could be terminated
3. Application & dissemination of outputs, included:
    - Commercialisation & other direct technology transfer
    - Communication to government, community & stakeholders

4. Development of researchers included
    - Supervision of postgraduates
    - Training & skills enhancement of postdoctoral staff
    - Actual research training outcomes

RPA approach

- ANSTO built its assessment around established research structures:
  - Review of the organisation's four research institutes
  - Annual review of overall research program by Technical Advisory Committee
- But it also looked at international models
  - Notably New Zealand & UK
  - Leading it to add *individual assessment* to its approach

…The TAC has three international experts, one Australian expert. It meets once a year over three days, and reports to ANSTO's Board

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Looked at international experience - notably the UK Research Assessment Exercise and New Zealand Performance-Based Research Fund - which both used individual assessment.

Bear in mind that the RQF was still in a conceptual stage, so we were trying to anticipate based on international experience.ANSTO's then CEO, Ian Smith, had been personally strongly involved in the New Zealand exercise. This comparison led ANSTO to include individual assessment in its approach. By the time the RQF took shape, ANSTO was well on its way.

Individual assessment: first stage

- Scope
  - All staff who undertook ‘research’
  - Everyone with ‘researcher’ positions was expected to participate
  - Other staff could ‘opt in’
- Almost 150 staff
  - From those just starting out to a Federation Fellow

Scope

- *All staff who undertook ‘research’*
- *Everyone with ‘researcher’ positions was expected to participate*
- *Other staff could ‘opt in’*

Those who opted in included

- Technicians
- People just starting on a research career
- People in business units
- People in operating divisions

The key questions was whether they had *research outputs* that they could put forward for assessment.

If they did, they could come into the process.

Why did people opt in?

- Because they wanted to be taken seriously for their research effort.

Almost 150 staff participated

From those just starting out - for example, with just their masters thesis for their outputs -- to a Federation Fellow

Evidence portfolio contents

- Best four outputs and outcomes of last five years
- Best outputs and outcomes in career
- Evidence of peer esteem and impact
- Context in which the research was conducted
  - Especially proportion of time spent on research
  - Any ‘special circumstances’
- Information enabling selection of assessors
  - RFCD discipline codes and ≤6 keywords

Identification of assessors

- Assessment of portfolios is a massive task
- Australian and international reviewers were identified in line with key words and codes
  - Drew on a range of databases and lists
  - Checked by institute heads for both independence and standing
  - Many of these assessors were ‘new’ to ANSTO

An assessment is a massive for researchers doing the assessment

It’s also massive from a research management perspective

To identify assessors, I mapped all researchers against the RFCD codes and their keywords.

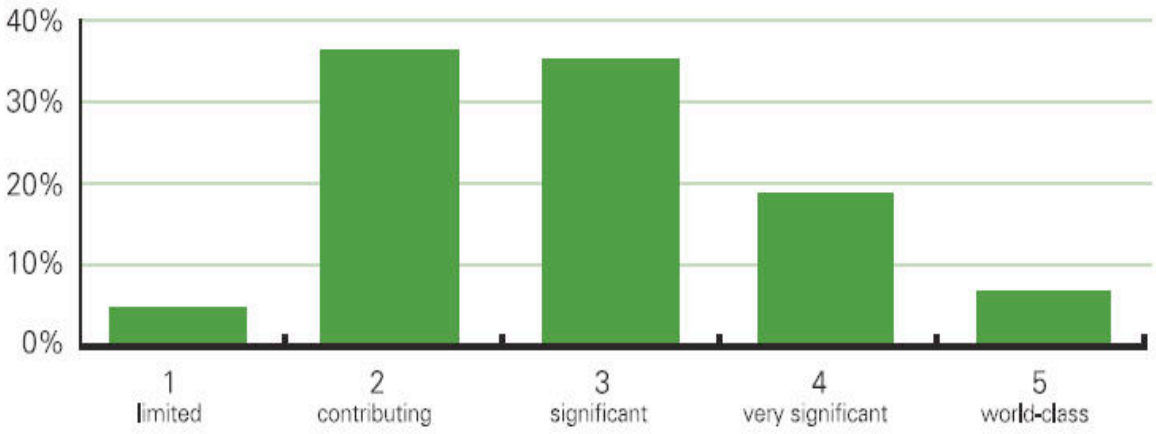
--- The need for independence ruled out recent or current collaborators or those who might find it hard to be objective

--- The important point was that most reviewers were from university environments -- rather than applied science and technology environments -- which created some issues that I’ll come back to.

I might also mention that the role of assessors was sometimes complicated by confidential elements in individuals’ portfolios. Unlike the ERA and RQF, ANSTO could not exclude confidential outputs because some people’s work is dominated by it.

•In the case of commercial sensitivities, sometimes the customer had to be directly involved in assessment, but this had to be managed carefully to be confident that the response was equitable.
-- In the case of security issues, it became decidedly complicated.

Assessment rankings



Assessors 'ranked' each individual based on his/her portfolio

These are the rankings that assessors provided across the whole organisation.

To explain briefly, a 5 was in the top 5% of the field internationally.

4 was in the top 10%.

3 was in the top 25%

-- and so on.

So the results were that about 60 per cent of ANSTO staff were in the top 25% internationally. -- A good result, given the nature of the staffing and the portfolio evolution.

This is from ANSTO's 2005 - 06 annual report.

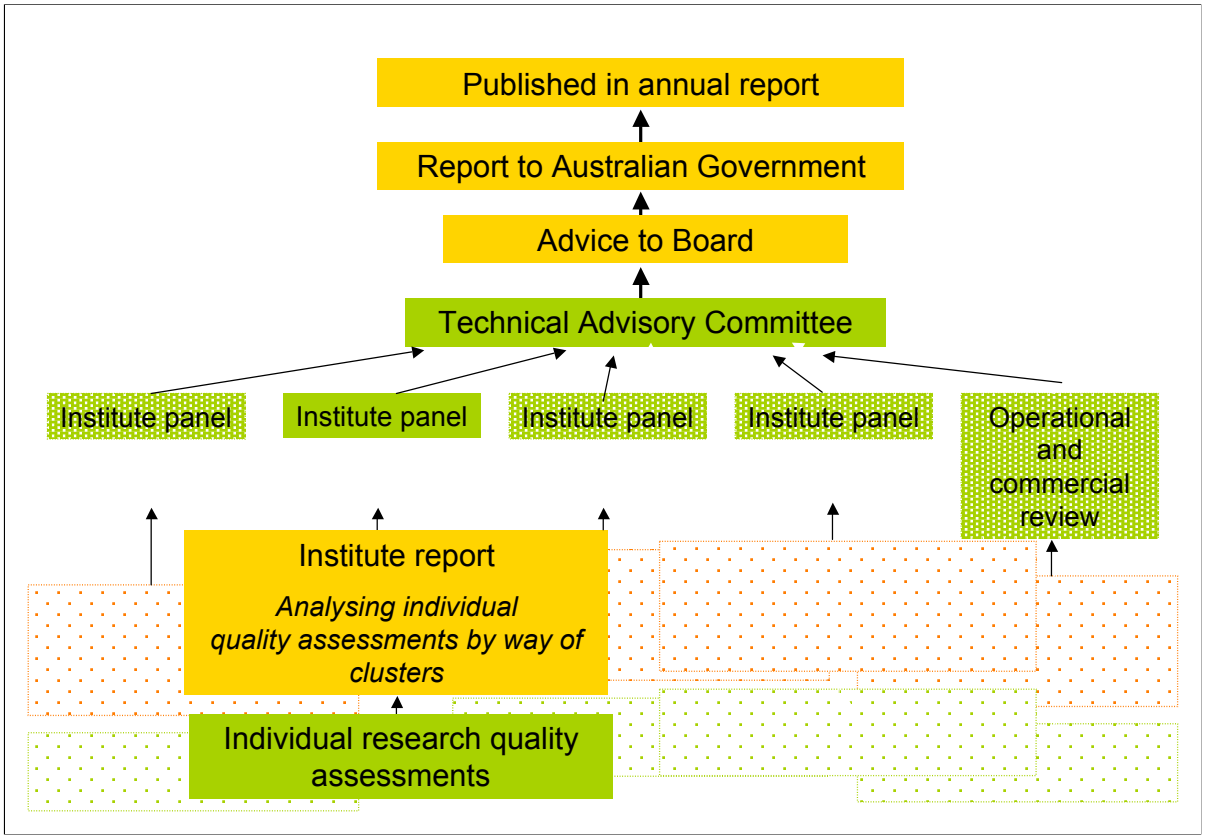
Cluster and institute reviews: Second stage

- Results were rolled up into clusters and analysed
- Institutes prepared a higher level report
- Cluster and institute reports were reviewed by expert external panels

Clusters were logical groupings based on type of research

Ranging from a few people in operational and commercial areas, to c. 18 people

Cluster leaders analysed the ranking analysis and prepared additional information


Published in annual report
Report to Australian Government
Advice to Board
Technical Advisory Committee
Institute panel
Institute panel
Institute panel
Institute panel
Operational and commercial review
Institute report
Analysing individual quality assessments by way of clusters
Individual research quality assessments

TAC recommendations

1. Appointment of certain key management & research project staff
2. Establishment, evolution, operation & quality of organisation-to-organisation agreements
3. Consolidation of long-term, strategic partnerships
4. Project monitoring
5. Framework for staff development & recruitment
6. Postgrad appointments & subsequent employment
7. Work with universities on developments in nuclear S&T

Both institute reviews and the Technical Advisory Committee made recommendations for ways in which research quality should be improved. The former were aimed at ANSTO management - both senior management and management in institutes - as well as the TAC.

Because the TAC is a committee that reports to ANSTO's Board, its recommendations were made to the Board and the Board accepted the recommendations. …

As you'll see, the recommendation from this assessment were diverse. They largely address the scope that management has to improve research quality. They're not specific to fields but rather are systemic. …

The 7th should be seen in the context of the discussion that was well under way at that time regarding the possibility of Australia adopting nuclear energy, which was exciting interest at that time in among several universities

What happened as a result of these recommendations?

In ANSTO's experience, benefits do not directly from the recommendations of such a review. They have to be part of a wider set of drivers. Some of these were under way - such as the staff development framework – The fact that these were outcomes from a major review helped in the overall culture change of the organisation. We know that project monitoring is generally resisted, for example. It's a constant effort to impose it.

Under the funding agreement that had established these reviews, the results and actions arising had to be reported in ANSTO's annual report, which goes to its minister and is tabled in Parliament.

The fact that ANSTO had to report against these to the next TAC meeting and in its annual report did not in itself drive actions ..

Long-term benefits

Long term benefits

First, for research management

Then some relationship benefits

…cultural change benefits

…And for individual researchers

Institutional decision-making

- Exiting areas of weakness that are not strategically important
- Strengthening weak clusters that *are* strategically important
- Rebalancing staffing
  - High level appointments, e.g. first distinguished researcher fellow
  - Mid-career opportunities
  - Early career appointments, notably postdoc boost

Government policy statements about research assessment generally emphasise funding areas that in which an institution is demonstrably strong. Thereby encouraging institutions to get out of areas where they are not strong. But that's not always the right course. ANSTO always viewed results against its strategies and its mandates. If an area that offers strong potential and you've got a platform on which to build, current weakness is a reason to invest, not disinvest. That's what a business would do. In particular, you can't expect that a team in a new area of research will necessarily come out well in such an assessment. ANSTO is always cognisant of the government's expectations of it and its mandate, and that makes expectations clear. ANSTO has a clear mandate from government under its Act and from ministers - which distinguishes research agencies and a body that's been set up for a particular purpose such as a rural R&D corporation, from a university. …

There were areas where we knew we should be stronger than we were, and so conscious decisions were made to improve the quality of research. Sometimes you do that by direct investments, and sometimes by changes in management practices - such as tighter targeting of work, stronger discipline, more guidance on expectations and by working with the team to address the reasons why they aren't delivering consistently excellent research.

I can't name an area that ANSTO left purely on the basis of the assessment and review process. Rather, it was input to broader decision making. In some cases some good researchers decided to leave ANSTO as the signals from ANSTO's strategic planning and this were that ANSTO wasn't planning to continue to invest in their areas of activity because of the overall strength and strategy positioning.

What's more directly attributable to the RPA were the areas in which ANSTO increased its investments due to the outcomes of the process. One thing that stood out in many areas was an imbalance of researchers who would benefit from more mentoring, and those in their area who could do that. In some clusters one would see people of strong international standing, but not enough people coming through in their teams to learn from them. In other cases there were many younger researchers but not sufficient strong researchers around them. To address this, at the top end, ANSTO established distinguished

Relationships with assessors

The assessment process helped to:

- Promote ANSTO's capabilities
- Disseminate high quality research to researchers of high standing
  - Because reviewers were generally 'new to ANSTO'
  - Credibility demanded use of assessors with high reputations
- Assessors commented on what they had learnt about ANSTO by being an assessor

Assessment is in itself a form of promotion and research dissemination. It is highly targeted, reaching people who are international and national leaders in relevant fields. It gives them an insight into the range of work that you undertake. And, subject to the content of the portfolio itself, of course, it showcases your best work to them.

I mentioned earlier that to ensure independence and objectivity, lists of prospective assessors were reviewed and anybody who was a collaborator or otherwise potentially not objective, was eliminated. This meant we were reaching people who quite possibly didn't know much about ANSTO. Which was great!

Assessors wrote of being pleased to have learnt more about the organisation.

… assessment led to a number of collaborators and other people getting involved with ANSTO … Our researchers and research leaders would not know this connection unless the assessor volunteered the information, since who was approached and who actually agreed to be an assessor was kept confidential

It's worth thinking about how institutions could do *more* to take advantage of these relationships. It's difficult because their identity is confidential. You can't go casually adding their names to your contact lists without people cottoning on to why you've done that. Besides the ethics …, it would create practical problems if the assessor became a collaborator, a customer or even a colleague.

ANSTO didn't actively maintain these links, but this remains an area worth exploring. It might be worth at least raising some options for ongoing contact or information provision, as part of the thank you to the assessors.Widening this to include people who declined to assess for reasons such as lack of time would also mean that no-one could assume that contacts who were added to your databases at this time were necessarily assessors.

Relationships with review panel members

- Members of the four institute review panels gained an even deeper understanding of ANSTO
- One since became head of ANSTO's Institute for Environmental Research
- Another later joined the Technical Advisory Panel

The review panels spent typically three days at ANSTO.

They got strong insights into the organisation's work, its facilities, its people, and its potential.

At the time, ANSTO's environmental research institutes had an acting head. One of the members of the panel reviewing this institute - Professor John Dodson, an Australian then at Brunel University in the UK - expressed an interest in the position and was subsequently appointed to that role. -- A great asset to the organisation.

One of the members of the panel reviewing the Radiopharmaceutical Research Institute last year joined ANSTO's Technical Advisory Committee
and so continues to provide advice to ANSTO, drawing on his own expertise and his experience in that review panel.

Greater understanding of excellence

- Breadth of ways of seeing excellence:
  - Academic users as e.g. measured by citations
  - End-users as e.g. measured by their feedback, repeat engagements, take-up of the work
- Fundamental tests:
  - What does the *researcher* regard as indicating excellence?
  - Would the users of that research agree with that indicator?
- How does the user 'pay' the 'price' for the research?

What constitutes 'excellence' is long debated among policy makers and research managers. Being an applied S&T organisation, ANSTO as an organisation has supported a broad view of excellence related to the type of user of the research. Researchers from *academic* backgrounds or those who generally collaborate closely with university researchers have a greater understanding of academic proxy measures such as citations. They are, for example, more inclined to volunteer citations or Hirsch indices when asked to demonstrate the quality of their research. Researchers who primarily work with industry or government have quite different perspectives on measuring excellence. In some these cases, one can seek customer feedback. One can look at take-up, which was very useful in areas such as radiopharmaceuticals, standards and isotope studies. What a researcher will volunteer is a good guide ….

For an organisation the responsibility is three-fold: (1) To elicit what researchers themselves view as meaningful and to validate that as a measure - e.g. with the research user (2) To find out ways of obtaining that information. (3) To reinforce across the organisation that all these ways of seeing 'excellence' are valid.

One view that I've developed is that one should look at the 'price' paid by the user of the research. I regard a citation is a form of payment for usage. Admittedly it's not like a cash payment, in that a researcher has an unlimited reserve of citations that they can dish out. But a researcher wants to use citations judiciously nonetheless, or else their own work won't look original. Be too miserly on the other hand, and it becomes plagiarism, or a type of 'theft'. I've been developing this concept for a while and would be interested in discussing it with people at this forum or later on. In other cases people pay cash directly for research. It might be contracted research or sponsored research. Their willingness to do so measures anticipated quality; continuing or repeat engagement - or sometimes even getting your invoice paid - demonstrates that quality was delivered. The price of collaborative research is more subtle. But co-funding is one measure of anticipated excellence. Repeated collaboration with indicates delivery has been satisfactory, and the higher

Greater emphasis on esteem

- Esteem measures provide an informal, independent view of the individual's standing
  - E.g. editing roles, committee leadership positions
  - Adjunct, honorary university roles are now held by about one in seven ANSTO researchers
- Benefits:
  - Linkages related to esteem are beneficial and help to disseminate knowledge
  - Esteem generates influence
  - But time commitments must be managed

The discussion of esteem in the context of research assessment has helped raise its profile as an indicator of quality....

But there are benefits also to the institution in its researchers undertaking activities that demonstrate the esteem in which they are held. These activities -- that is, esteem-building activities -- are in their very essence network-based. So they extend the networks in which the institution is involved. This can lead to new opportunities and helps to disseminate your research.

Esteem benefits the organisation by generating influence. For example it increases an institution's profile, its ability to influence policies, its directions, decisions about where conferences will be held and the like. ANSTO for a few years until recently had a performance indicator that measured leadership roles in national and international forums as a proxy for Australia's influence in the nuclear arena internationally. This recognised the linkage between esteem - specifically being elected or appointed to positions such such as chairs or convenors -- and Australia's standing.

One problem is that you don't want people chasing esteem indicators for the benefits to them personally, whether because it suggests the high regard in which they are held or because they'd rather be engaged in all this wider activity than the work they are being paid to do.

One ANSTO manager who was very involved in governance matters raised the question whether researchers should have to get management approval for their involvement in such activities. I took the position that you couldn't require it when we were sending so many signals that the organisation gave high regard to such roles. How could we say 'we'll judge you in part on the esteem you can show' and then say 'but you can't take up the esteem opportunity you've been offered'. ... But what the organisation can have a say in, is how much of a person's working time should be spent on such matters.

Researcher Merit Salary Increases

- Researchers can seek a higher level of pay if they can show their research is of a quality associated with a higher salary band
  - Element of ANSTO's Enterprise Agreement
- Used a form based on the RPA evidence portfolio

One of the major re-uses of the research performance assessment process was in what ANSTO calls Researcher Merit Salary Increases.

Researchers can seek a higher level of pay if they can show their research is of a quality associated with a higher salary band. If quality is sustained after two years, the researcher is formally promoted to the higher band. This was introduced in ANSTO's last Enterprise Agreement and is expected to be continued in the next one. When it came time to design a way to introduce this salary scheme, after the Enterprise Agreement came in, the RPA provided an excellent starting point.

So you can see a progression from research management framework to an individual salary determination process.

… The RMSI used a form based on the RPA evidence portfolio , which meant that individuals could reuse their evidence portfolios and they were more familiar with the expectations, which made it easier for them and reduced the amount of time it took for them to prepare their responses

…But a significant difference, though, between these two processes was that while ANSTO was motivated to help researchers develop the best possible RPA portfolio, it is in *individuals'* interests to develop the best possible RMSI portfolio.

I gave quite a bit of help to researchers working on their RPA portfolio - for example drawing out what possible areas of impact might be. Some need assistance because they either haven't grasped the concepts, struggle with compliance or simply don't know how to put forward the best case.

In the RMSI, the mechanisms to assist them are still be refined. It is tricky because institute heads assess RMSI portfolios, so they can't give advice in advance. It's important though that researchers do learn how to present a strong case. This is an important skill of great value to the institution.

Feedback to researchers

- Individual rankings were confidential
  - Only known to Chief of Research
  - Some researchers requested results and have acted on what they learnt
- Same principle maintained in Research Merit Salary Increases

As I mentioned very early in this talk, confidentiality was an important principle.

The individual rankings were only known to ANSTO's Chief of Research (my boss).

But we made it very clear that researchers could ask for the results. It would not have been right to have information about a person to which they themselves did not have access. It was on the condition that they didn't seek to use that information or disclose that information to others, as that would threaten confidentiality overall.

•Again, the benefits are not only to the individual. The institution benefits from researchers knowing more about how others view the quality of their research, because this provides the foundation for improvement. In many cases there are two areas for improvement: both the research itself AND how the researcher presents it.

ANSTO applies the same principle now in the research merit salary increases. A researcher can ask for a meeting with the chief of research to help them improve the quality of their research and their application in subsequently rounds of the program.

Supporting grant applications

- Basing portfolio forms on ARC forms meant:
  - Staff could reuse some content when applying to the ARC as Partner Investigators
  - General familiarity with such forms
  - Great increase in awareness of RFCD codes
- Improved skills in presenting one's expertise
- Greater consciousness of constraints in such forms

The idea that researchers might need to go through such a process to improve their grant applications might take some of you aback, given researchers in many institutions routinely complete or participate in grant applications. But ANSTO research is largely funded by appropriation, so grants are not fundamental to the research effort.

I had used keywords and RFCD codes from ARC forms primarily for practical convenience, trusting that the ARC approach would be useful, and to make it easier for staff who did ARC applications to fill in the assessment. One benefit -- even in the short-term -- was that researchers could then reuse either content, or what they had learnt, in completing ARC applications. RFCD codes had been unfamiliar to many, for example, but now they knew what they were and where to find them. Researchers had a better understanding of what should be used and emphasised to promote one's expertise.

One issue, for example, was that many researchers had wanted to display the *diversity* of their capabilities - so they'd have a mix of outputs that weren't necessarily the best. Where I was aware of this happening, I'd typically ask the researcher to reconsider and give the BEST examples, regardless of the subject. It surprised me how often this was necessary - which indicates that the researchers didn't really understand what was meant by 'quality' - and were confusing what they COULD do - that is, the diversity of their potential - with what they HAD done - that is, what they really were BEST at doing. I've seen this elsewhere as well in my consulting work. One of the long-term benefits of such exercises will be to educate researchers about disentangling potential, from proof.

The word constraints were also something of a learning experience for some people. In the assessment process I would often do the editing myself - I could do that quickly - and then get the researcher to validate it, explaining what I had done. How many improved their editing skills I can't say, but I at least showed how much words could be cut without sacrificing vital content.

In the researcher merit salary increase process, the researchers are expected to make these cuts themselves. Some protest, …. Insisting on the limits being met builds an important discipline, but it's more easily done when self-interest is at play than in an assessment exercise that carries little - if any - benefit to

Long-term issues

Perceptions of 'outputs'

- What gets measured gets prioritised
- Applied S&T organisations have different priorities to universities, which is reflected in their outputs
- Definition had to be wider than 'peer reviewed publications'
- Outputs had to capture the range of work that ANSTO wants its researchers to undertake, so had to include:
  - Commissioned and technical reports
  - Patents, designs (e.g. instruments), materials, devices, software

What gets measured gets prioritised. We've probably all seen that in recent years with the results of the focus on *numbers* of publications. Numbers were being reported, so quantity was prioritised - leading to the pushback in the form of the ERA and proposed RQF before that.

Applied S&T organisations have different drivers to universities, which is reflected in their outputs. For ANSTO the definition had to be wider than 'peer reviewed publications' such as books, journal articles, conference proceedings, theses. For many of you these are essential, especially as they tie directly to funding, but that isn't the case in ANSTO or some other institutions.

Outputs had to capture the range of work that ANSTO wants its researchers to undertake, so had to include:

- Commissioned and technical reports
- Patents, designs (e.g. instruments), materials, devices, software
- For example, We had people nominate a spinoff company website for review
- Or physical equipment that might have had to be inspected

This can be difficult to manage, as you'd appreciate, but also raises some real issues in the assessment process.

Assessors' views of outputs

- Focusing on academic style publications would distort the research effort
- But assessors more familiar with typical academic outputs
- Ongoing effort is required to take assessors outside their usual assessment paradigm and to give researchers confidence in the equitability of the process

ANSTO did not not want to encourage a shift to academic style publications. That would distort the research effort. It would suggest that was where ANSTO thought excellence was to be found. -- wrongly. The result could be a downplaying of vital work such as reports, technical papers, standards development and commercialisation.

The major issue is that many assessors are more familiar with academic outputs. The guidelines that I wrote for assessors emphasised the breadth of outputs and that no form of output was to be given higher regard. But assessors don't always accept that - they naturally view outputs in the paradigm in which they are used to operating, which is generally the academic research paradigm. Some find it hard to take an article in the trade press as seriously as an article in a peer-reviewed journal, although ANSTO and the researchers for good strategic reasons may well be focusing on dissemination to industry via the trade press rather than to academic audiences. Or they place weight on the impact factor or standing of a publication in which a peer reviewed article appears, although again there often is good strategic reason for putting an article in a journal with a lower impact factor to reach a particular target audience.

This is a real problem for applied S&T organisations - or for any research community that does not have a weighting towards conventional academic publications. It needs constant attention because the paradigm is strong.

It was an issue internally. Some staff perceived a bias towards publication outputs and felt hard done by. This view has proved hard to dislodge. The TAC is aware of this problem and I expect it will be a focus of attention when ANSTO does its next research assessment.

Understanding of 'impact'

- Researchers struggle with impact
  - They often don't understand it
  - Inconsistent use of language (outputs/outcomes/ impact/benefits….) doesn't help
  - Models in Australia have tended to distinguish *academic* impact from other impact
  - Researchers can often verbalise it but don't write it down
- Ultimately impact is how we justify investment in research
- Need for long-term awareness building
- Users' perspective is key

Researchers struggle with impact. They often don't understand it. Inconsistent use of language (such as outputs/outcomes/ impact/benefits….) doesn't help -- we'd do ourselves a great service as a sector if we improved our definitions and stuck to them

Nor does it help that academic impact gets separated from other impact. As I discussed earlier, I regard the only difference as who uses the research, and how the value they place on it is measured - the idea that I proposed that a citation is a type of 'price' paid for using research.

I noticed that researchers can often talk about the impact of their work, but put a form in front of them and they don't include that same relevant content.

We HAVE to get better at this. We need as many efforts as possible to educate researchers. Ultimately, customers and the Australian taxpayer is paying for the impact of research. Policy makers for years have been pointing out that communication of impact has to be improved to encourage investment in research. I think the issue is deeper than that - the difficulties that researchers have articulating impact suggests that they don't really value it. An assessment exercise is an important way of focusing their minds and improving their understanding. We need long-term programs in our institutions to help researchers - and research management - discern where impact has been achieved.

A key - I believe - is to put oneself in the shoes of the user. What does the user value? It might be timeliness or usefulness for them rather than 'excellence' per se. Research to improve use of antiquated equipment probably won't appear to be 'excellent' in a discovery sense but can be to the customer. Users can validate assertions or choice of quantitative data.

Is ‘excellence’ the primary goal?

1. Recognising mandates and expectations
   - E.g local areas and the ‘third stream debate’
2. Emerging researchers, teams and fields
3. Recognising importance of building capacity
   - National importance of preparedness
   - Areas of medium/long term need, even if presently weak

Talking about impact leads me to my final point - a more general issue about whether excellence should be viewed as the primary goal.

The first point is that institutions have mandates and are set up in the context of community expectations. They can be explicit, as in ANSTO’s nuclear focus, or implicit in their origins or traditional role. They can include serving a region’s industry, and community engagement - witness the third stream debate.

You might think I’m justifying mediocrity - but what I’m doing is saying we have to come back to why it is that institutional research is supported by governments, industry and communities. It isn’t necessarily to be among the world’s best.

The second point is emerging areas of research and emerging research teams. It’s essential to invest in areas of potential. It’s also essential to treat fairly researchers and teams in areas that aren’t yet fully resourced.

We haven’t as a nation yet seriously tackled how we position national preparedness and capacity building in the debate over excellence. It can be very hard to be among the world’s best in an area where Australia is only marginally active and where the users of research aren’t pushing for results. We risk losing areas of potential national importance if we don’t sustain capabilities in key areas even where we’re not among the world’s best.

In some ways, bringing this debate into the foreground at ANSTO has been one of the most significant benefits long-term of its research assessment process.

Thank you

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